

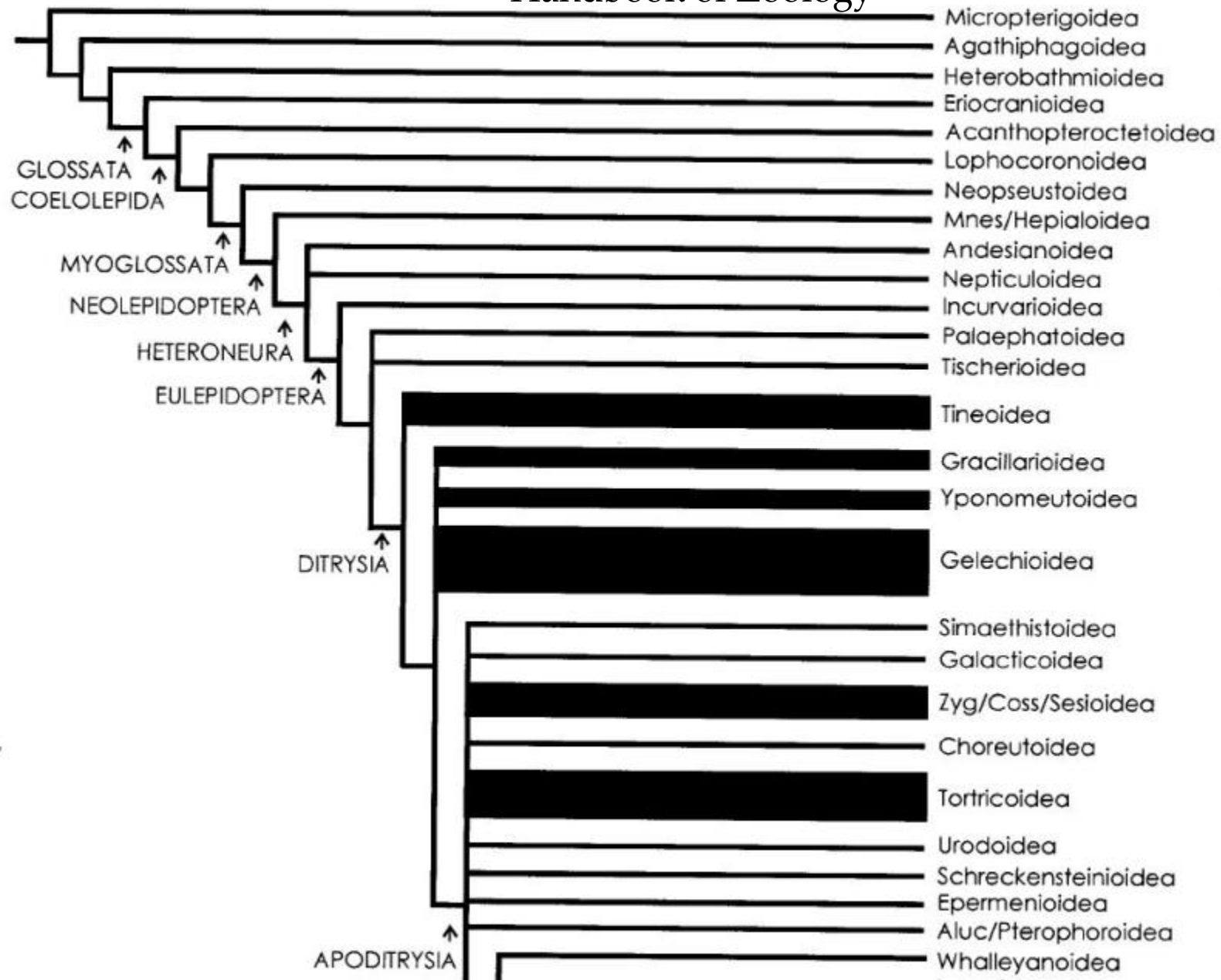
# Basal Lepidoptera

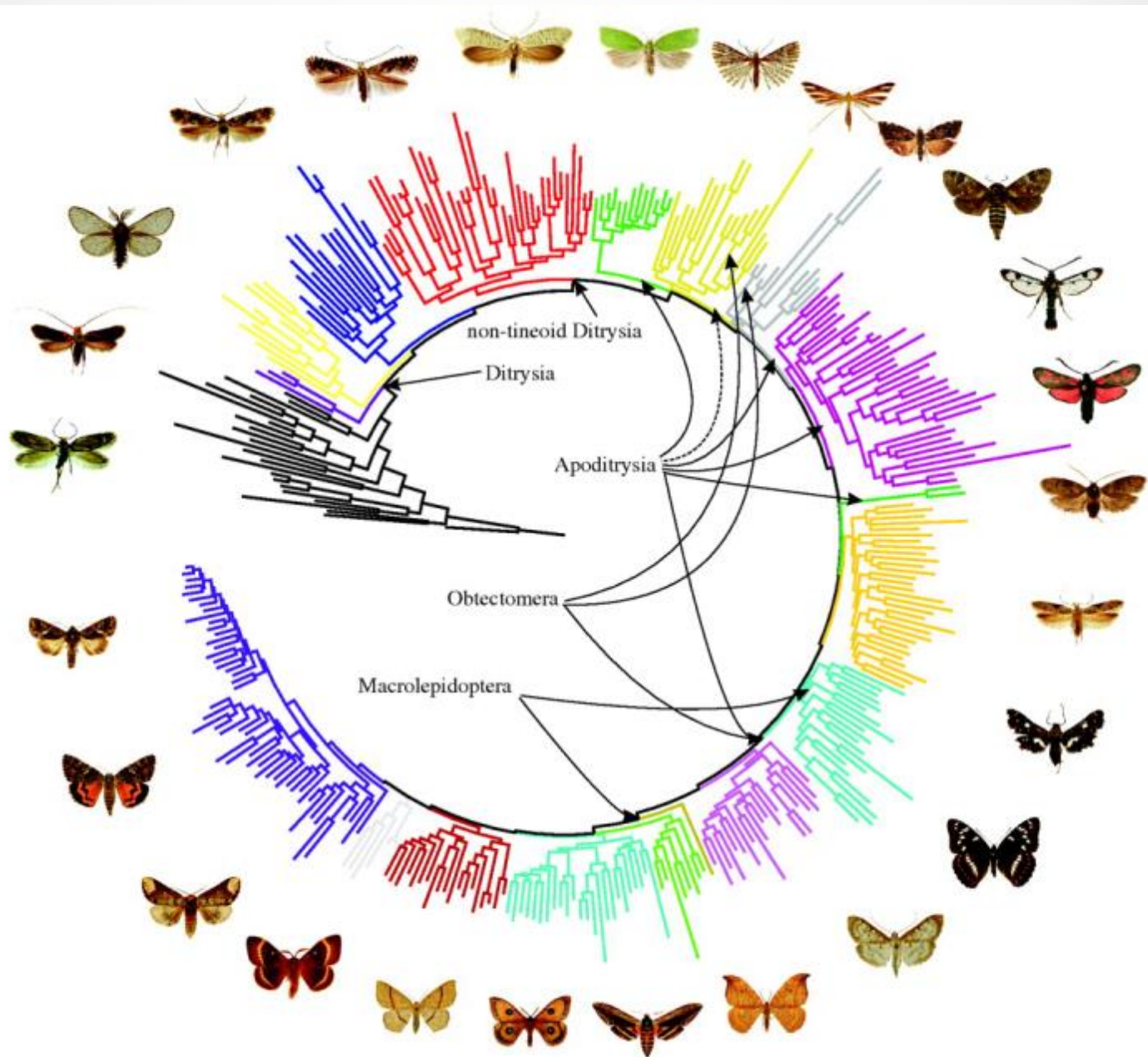
Chris Grinter, August 2014



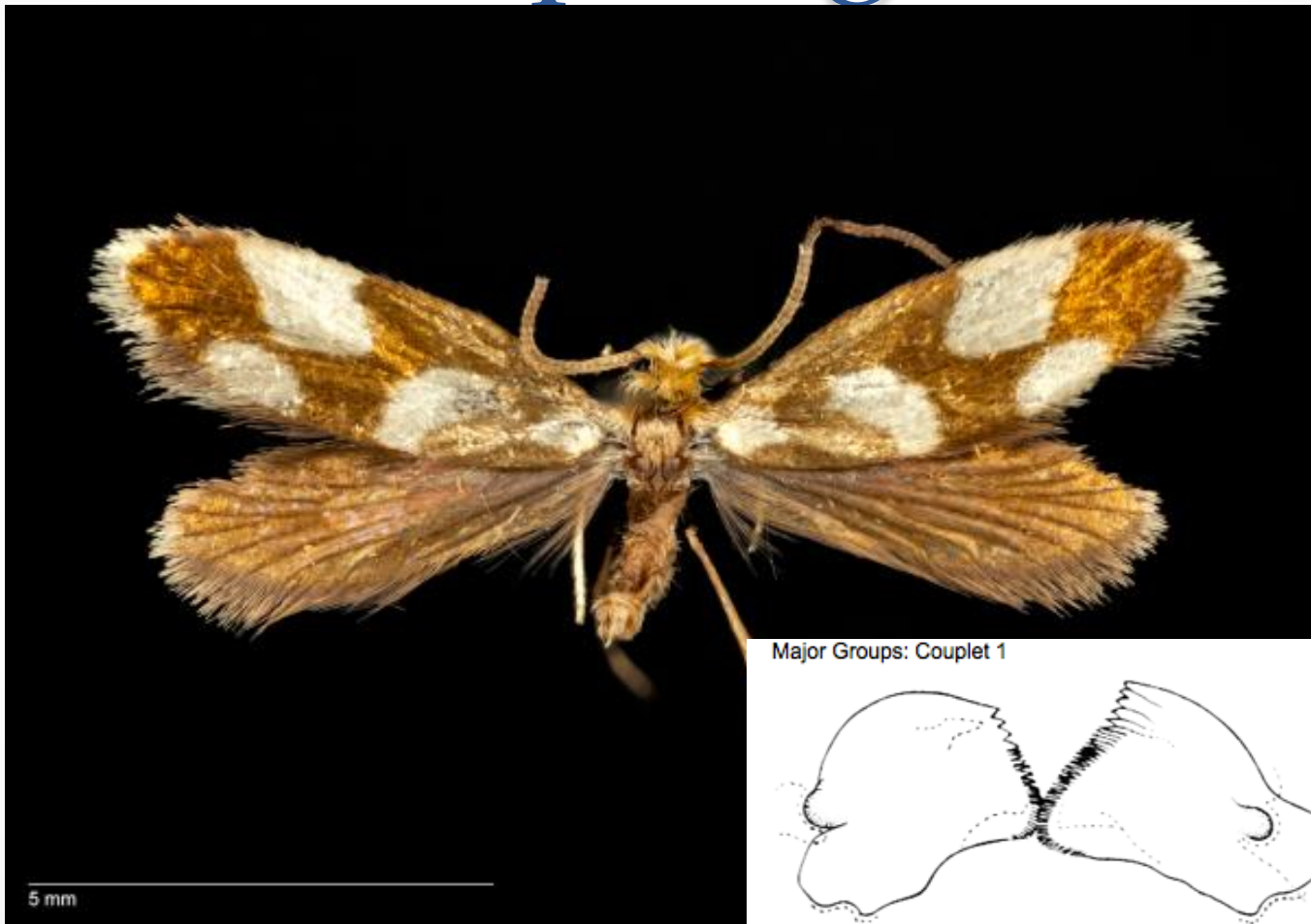
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# Handbook of Zoology

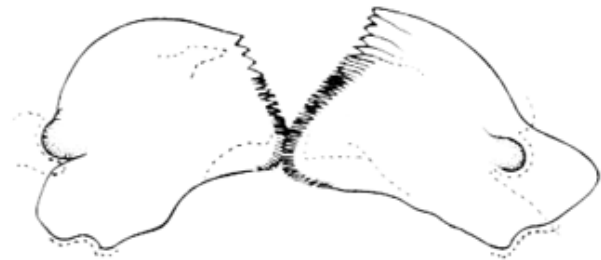




# Micropterigidae



Major Groups: Couplet 1



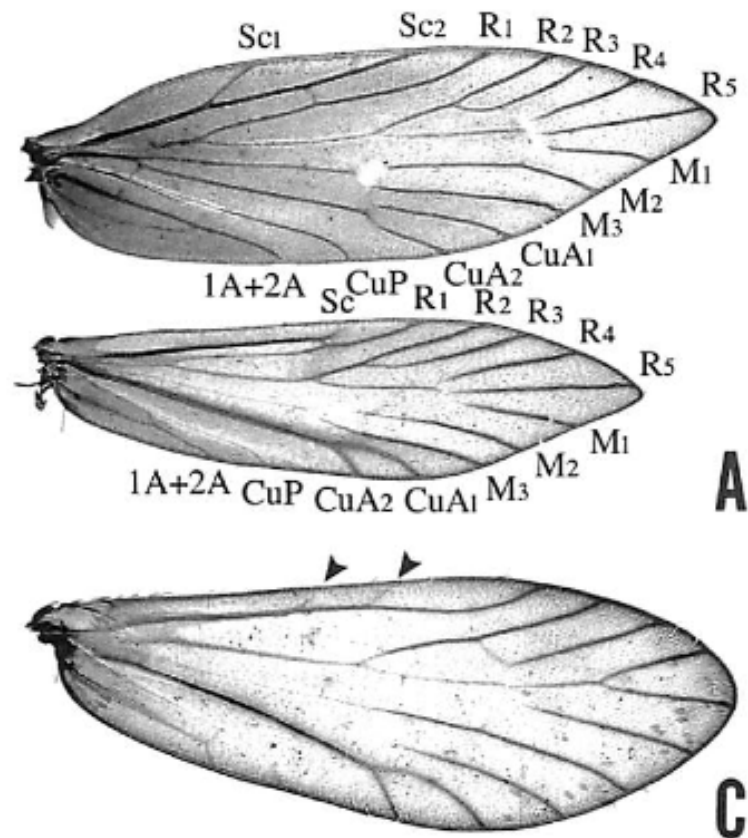
B

*Epimartyria pardella*



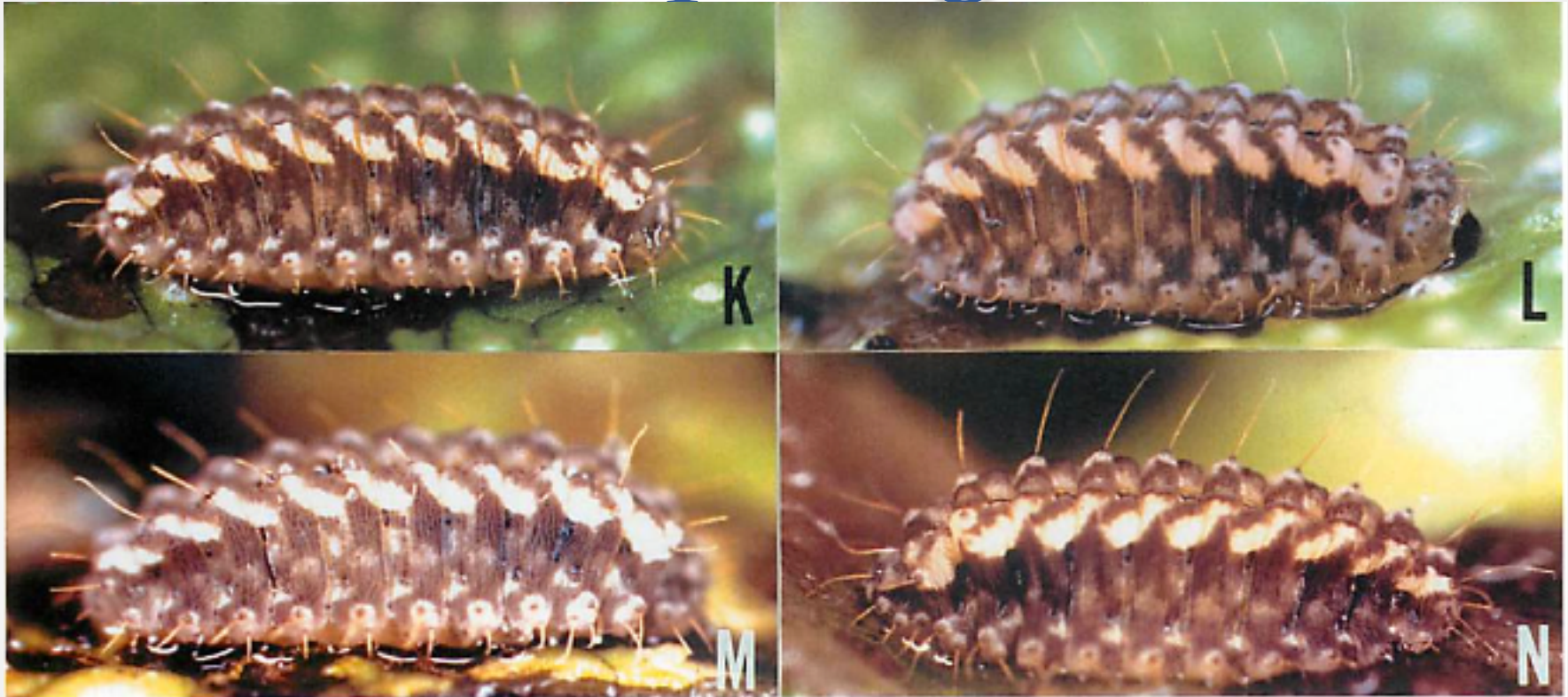
# Micropterigidae

- Asymmetrical, functional, mandibles.
- Adults feed on pollen, larvae on liverworts (possibly detritus).
- Diurnal
- 20 extant genera, hotspot of diversity in SE Asia with many undescribed species.



Homoneurous wings - Hashimoto 2005

# Micropterigidae

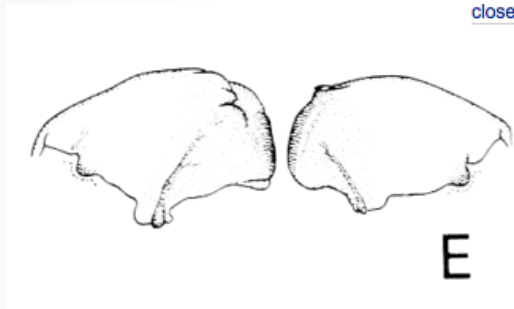


Ultimate instars – Hashimoto 2005

# Families not in US

- Agathiphagidae:

- Functional mandibles



- Heterobathmiidae:

- Very small non-functioning mandibles



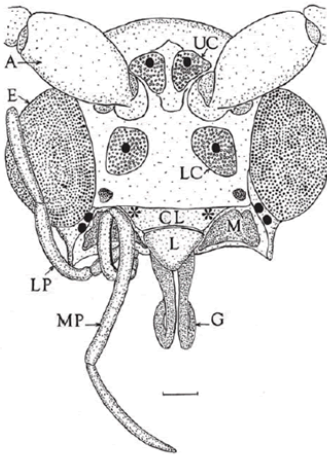


# Families not in US

- Lophocoronidae:



- Neopseustidae:





# Families not in US

- Mnesarchaeidae
  - New Zealand

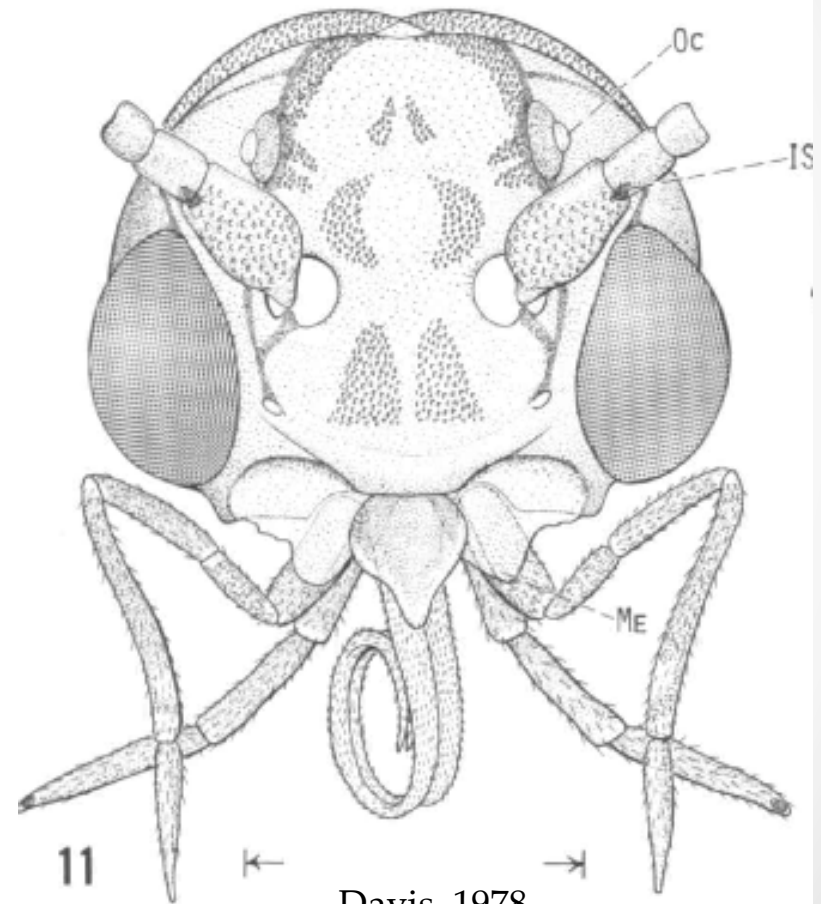


# Eriocraniidae



# Eriocraniidae

- Membranous, non-functional mandibles (=essentially vestigial)
- Proboscis/haustellum
- Prominent Ocelli
- Labial palps long and 3 segmented.
- Maxillary palps long and 5 segmented
- Holarctic, diurnal (but come to light)
- Blotch miners on Fagales
- Early spring fliers



Davis, 1978



# Eriocraniidae

8 *Eriocrania unimaculella*

Powered by Highslide JS



Blotch miners on Fagales

Mine in *Betula*

North Dean Wood, Halifax

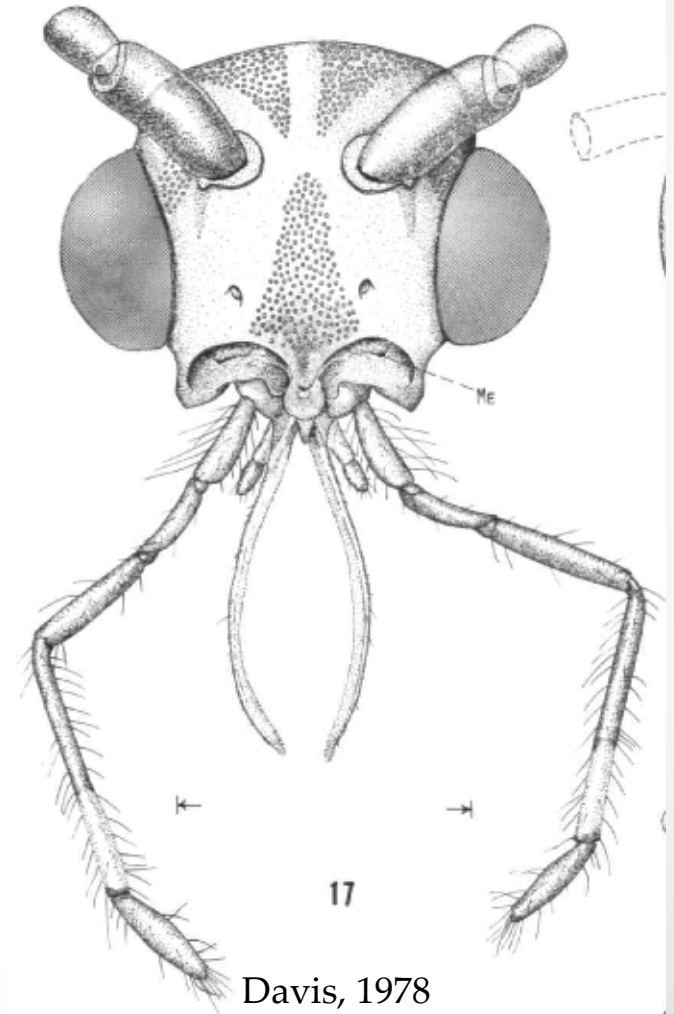
(Photo © [Charlie Streets](#) )

# Acanthopteroctetidae



# Acanthopteroctetidae

- Mandibles questionably present (functionally absent)
- Ocelli absent
- Labial palps reduced to 2 segments, tiny.
- Maxillary palps long and 5 segmented
- California, Crimea and Montane Peru.



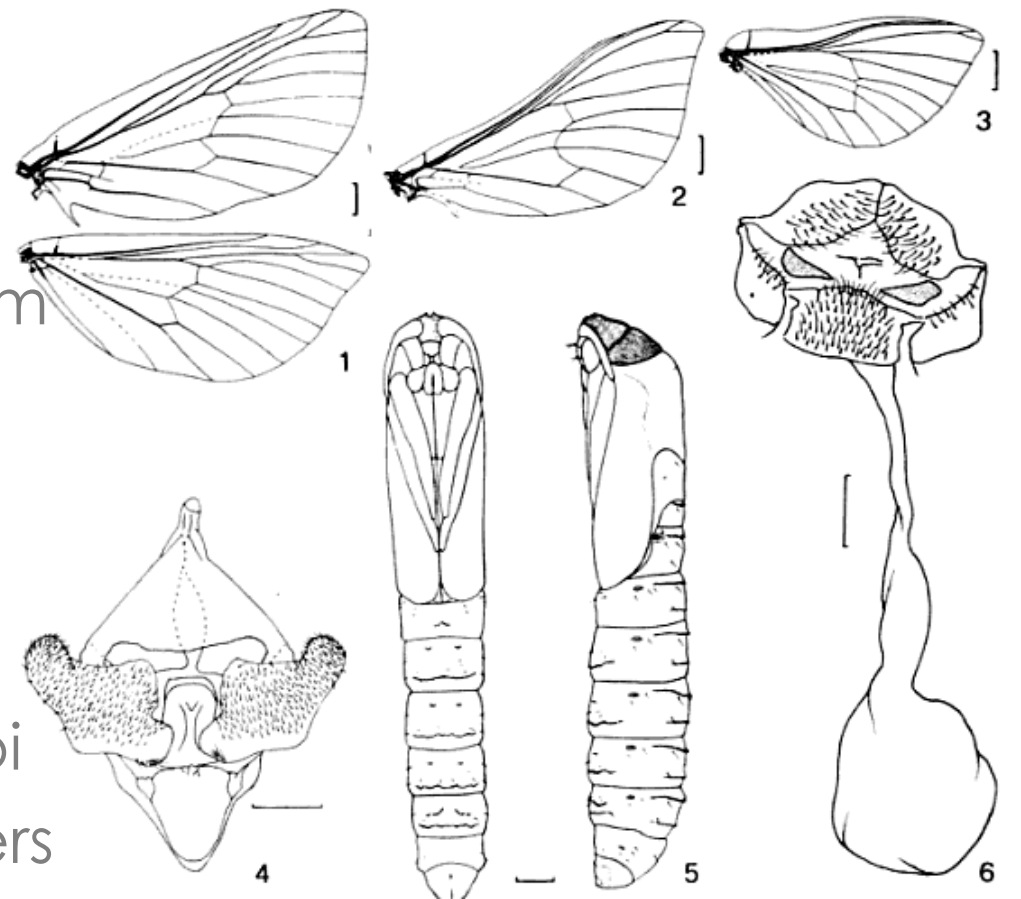


# Hepialidae



# Hepialidae

- Small to very large (some of the largest moths)
- Well developed jugum
- Ocelli absent
- Proboscis vestigial or absent
- Short labial palpi
- Minute maxillary palpi
- Soil and/or stem borers



# Hepialoids not in US

- Palaeosetidae:



- Prototheoridae:





# Hepialoids not in US

- Neotheoridae:
  - Vestigial mandibles
  - From a solitary female in the Amazon



- Anomosetidae:



# Nepticuloidea



# Nepticulidae & Opostegidae

- Leaf miners (mostly), some bark and fruit miners.
- Antennae with basal segment that forms “eye cap”
- Small to minute, Nepticulidae are some of the smallest moths known.
- Opostegidae bright white.

0-3 mm





# Not in the US

- Andesianidae:



- Palaephatidae:



# Adelidae

Characterized by the long antennae



Chris Grinter

# Heliozelidae

- Similar to Nepticulidae but have a smooth scaled head.
- Tiny, metallic
- Unscaled proboscis





# Prodoxidae





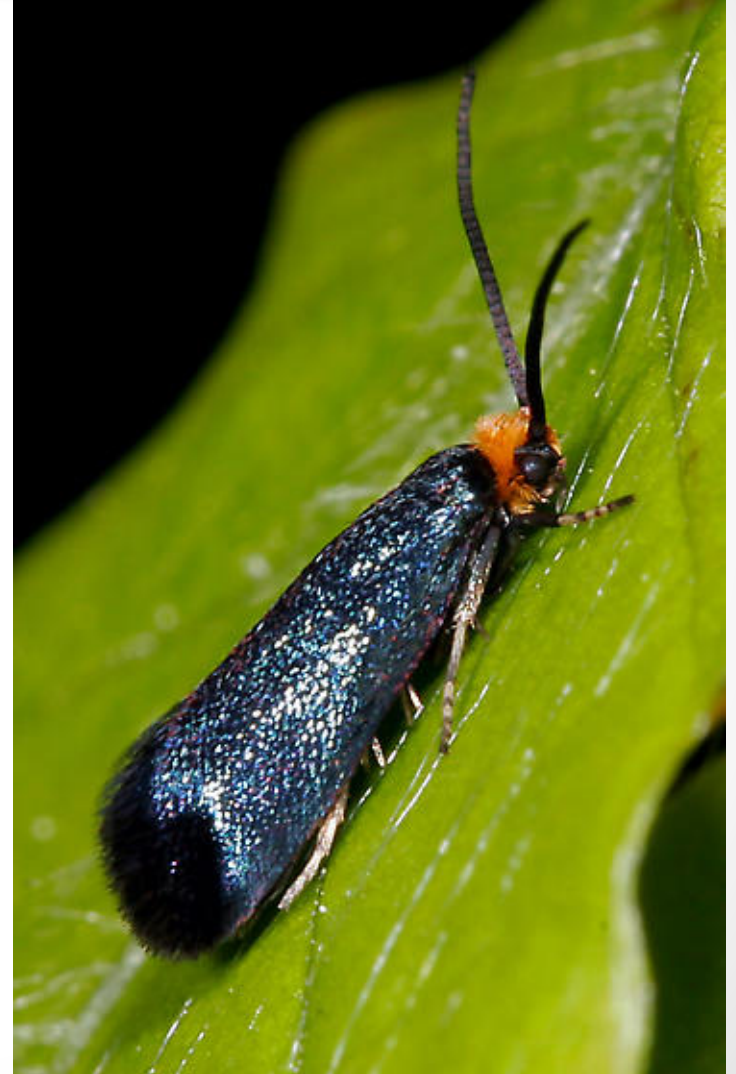
# Prodoxidae

- Yucca Moths
- Funky mouthparts, specialized for pollen bundles.
- Famous coevolutionary relationships with Yucca



# Incurvariidae

- Similar to Prodoxidae, often metallic.



# Cecidosidae

- Gall-making, jumping pupae
- South Africa, New Zealand, South America



# Tischeriidae





# Tischeriidae

- Characteristic resting posture with wingtips pressed onto substrate and head elevated.
- Tuft of scales on head
- Males often with long hairs on antennae
- Can have scaled proboscis



# References

- [www.microleps.org](http://www.microleps.org) (Terry Harrison)
- <http://www.biodiversityexplorer.org/lepidoptera/cecidosidae/>
- Handbook of Zoology
- The Lepidoptera - Scoble